

EXHIBIT B

1 LISA RODENBURG PhD

2 A. Yes.

3 Q. And you agree that PCBs have been
4 commercially produced in numerous countries,
5 right?

6 A. Yes.

7 Q. Monsanto is not the only entity
8 which historically produced commercial PCBs,
9 right?

10 A. Correct.

11 Q. And commercial PCBs are different
12 than byproduct or inadvertent PCBs, right?

13 ATTORNEY WOERNER: Object to form.

14 THE WITNESS: It depends on what
15 you mean by "different."

16 BY ATTORNEY SORENSON:

17 Q. Okay. Well, let me rephrase the
18 question.

19 Byproduct PCBs were not produced by
20 Monsanto as Aroclors, right?

21 ATTORNEY WOERNER: Object to form.

22 THE WITNESS: Correct.

23 BY ATTORNEY SORENSON:

24 Q. And you've previously testified
25 that with regard to commercial PCBs

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different number of congeners that have been identified as byproduct in nature today than when you gave your testimony in the Spokane lawsuit?

A. I'm not sure what you mean by "identified as byproduct." There's a large number of congeners which can be either byproduct or Aroclor. It depends on the situation.

Q. Okay. And up to 130 different congeners; is that right?

A. I believe that that's what Keri Hornbuckle has said in some of her papers, yes.

Q. Do you have any reason to dispute those numbers?

A. No.

Q. Have your opinions changed since your Spokane law- -- or since your deposition in the Spokane lawsuit with regard to the concentration of those congeners found in products such as pigments?

A. Only if there was new data that became available since then.

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2 does not contain PCBs.

3 Q. And flipping ahead to the next
4 page, this is discussing that yellow pigment
5 and PCB 11 specifically, slide 9 here; is that
6 correct?

7 A. Yes.

8 Q. And at the bottom here, pigment
9 yellow 12, 13, 17, 83, and it says they all
10 have been all listed on EPA's toxic
11 substances -- it says they're all listed on
12 EPA's Toxic Substances Control Act inventory;
13 is that correct?

14 A. Correct.

15 Q. And that is -- is that true today
16 that those are all listed on the inventory?

17 A. I believe so.

18 Q. Looking ahead to slide number 10,
19 it says: PCB 11 is everywhere... in the water
20 column.

21 Do you see that?

22 A. Yes.

23 Q. And then it lists some locations
24 such as Spokane, Portland Harbor, Chicago,
25 San Francisco Bay, et cetera. Do you see

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those?

A. Yes.

Q. And that -- to your knowledge, is that still true today?

A. Yes.

Q. And PCB 11 is largely not found in Monsanto's Aroclors; is that right?

A. Yes.

Q. You use PCB 11 as an indicator of a byproduct PCB source, correct?

A. Yes.

Q. If we look on slide 11, the bullet points say that: PCB 11 ink -- inks used in printing paper, plastic, and fabric, as well as pigments in plastics.

Are those products in which PCB 11 is found?

A. Yes.

Q. And it says: From 26 countries on five continents.

And then you can see here above those bullet points a graph. Is that graph from the Guo 2014 publication?

A. I believe so, yes.

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2 Q. And then there's a chart. I'll
3 zoom in. And it has a line at the Federal --
4 is that the Federal Water Quality Standard?
5 Is that what that line is representing?

6 A. Yes.

7 Q. And so these various locations,
8 New Mexico, Portland Harbor, Delaware River,
9 New York, New Jersey Harbor, and San Francisco
10 Bay, each of those locations have demonstrated
11 PCB 11 concentrations exceeding the Federal
12 Water Quality Standard; is that correct?

13 ATTORNEY WOERNER: Object to form.

14 THE WITNESS: That shows that the
15 Delaware River is just below --

16 BY ATTORNEY SORENSON:

17 Q. Okay.

18 A. -- the water quality standard. But
19 the other four, yes.

20 Q. The other four are. They --
21 their --

22 (Stenographer clarification.)

23 Q. Sure. I'll go back.

24 So for New Mexico, Portland Harbor,
25 New York, and New Jersey Harbor, and the San

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Francisco Bay, the 64 -- is that picogram per liter? Is -- water quality standard has been exceeded by PCB 11 alone; is that correct?

A. Yes. In those four water systems and some of the samples.

Q. Okay. Slide 12 here is titled: PCB 11 in Printed Materials.

And we can see one of these here is a yellow plastic bag, and it looks like it's saying that 38 parts per billion has been detected in that product; is that correct?

A. Yes.

Q. And these were -- that was collected in the United States; is that right?

A. Yes.

Q. And some other products with PCB 11 detections were a black-and-white printed newspaper; is that right?

A. Yes.

Q. Brown unprinted cardboard?

A. Yes.

Q. A color glossy magazine?

A. Yes.

Q. A color newspaper?

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in an attempt to determine whether the PCBs in these samples arose from Aroclors produced by Monsanto and, if so, to quantify the fraction of the total PCBs in each sample that is attributable to Monsanto's Aroclors versus the fraction attributable to non-Aroclor (inadvertent or byproduct) sources.

Did I read that correctly?

A. Yes.

Q. And that was the purpose of your work in this case, correct?

A. Yes.

Q. Okay. We're going to move around a little bit here on your report, and if -- I think you have a copy there. If there is some time I need to zoom in or change what I'm looking at so you can read mine correctly, please let me know. I understand you have a copy as well, so hopefully that won't be an issue.

I'm moving to page 10 now.

A. Yeah.

Q. And at the top here it says:

Background on PMF.

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2 Do you see that?

3 A. Yes.

4 Q. And PMF stands for positive matrix
5 factorization; is that right?

6 A. Yes.

7 Q. And is -- that's a statistical
8 technique, correct?

9 A. Yes.

10 Q. And that's one of the statistical
11 techniques that you use to form your opinions
12 in this case, right?

13 A. Yes.

14 Q. And another one that you use would
15 have been regression; is that right?

16 A. Yes.

17 Q. Okay. If we go ahead to page 12
18 here, the middle paragraph, you can see
19 there's a reference here to regressions. Do
20 you see that?

21 A. Yeah. Yes.

22 Q. Refers to R-squared values and
23 that's -- R-squared value is something that
24 you discuss extensively in your report, right?

25 A. Yes.

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analyses, you needed raw data to input into those; is that fair?

A. Yes.

Q. And that was sampling data that was collected as part of the -- what you refer to, the GD reports, right? It's the Green-Duwamish reports.

A. Now I forgot the question.

Q. Okay. I'll restart. It's no problem.

So in your report you refer to the Green-Duwamish congener study, correct?

A. Yes.

Q. And you refer to certain publications as the GD, standing for Green-Duwamish, reports, correct?

A. Correct.

Q. And as part of those -- as part of those publications, data were generated and -- and from sampling various environmental compartments; is that fair?

A. Data were generated. They weren't generated for the purpose of my report. But, yes, data were generated.

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Q. Right.

They were generated as part of the
GD report, correct?

A. No. They were not generated for the
purpose of my writing the GD report. They
were generated for many other reasons.

Q. Sure. That's a good distinction.

And that data was used in both the
GD reports as well as in forming your opinions
for your report in the Seattle case, correct?

A. Yes.

Q. Okay. And we'll talk a bit more
about the data sampling in a bit here. I just
want to get a little bit more background
information on the PMF and regression
analyses.

So the data is collected, and then
it has to go through a processing step before
it can be input into the PMF or regression
analysis; is that fair?

A. Yes.

Q. And you used PMF2 software for your
PMF analysis, right?

A. Yes. I used PMF2 for the main

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conclusions of the Green-Duwamish reports and the expert opinion.

I also did use PMF5 for some of the conclusions of the Green-Duwamish reports, but the conclusions there were that PMF5 just didn't work very well and couldn't be relied upon.

Q. Okay. And as a general -- I want, you know, the jury to be able to understand this technical topic we're discussing.

As a general point, as part of the PMF analysis, you essentially load data into the software and then it generates a model which we call factors or fingerprints; is that fair?

A. Correct.

Q. And then those factors, those represent the PCB patterns within a given sample, right?

A. Within a given set of samples, yes.

Q. Okay. So within a given environmental compartment; is that fair?

A. That's the way that I broke up the data was by environmental compartment. So

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each input represented one environmental compartment.

Q. Okay. And then the PMF determines the contribution of each factor to that compartment, right?

A. Yes.

Q. The PMF analysis does not itself identify the PCB sources, right?

A. It generates fingerprints, and it's up to the operator, the scientist, to identify them.

Q. Okay. And then the scientist or the operator of the PMF software, they choose a number of factors to be used in each analysis, correct?

A. Based on the output of the PMF model, they look and see which number of factors does the best job of explaining the data. And then they choose that number of factors as their model solution that they're going to interpret.

Q. And for this case, that was you, correct, choosing the number of factors?

A. Yes.

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an Aroclor, it is often an inadvertent or byproduct, but it could also be the product of, for example, microbial dechlorination of an Aroclor or the metabolism of an Aroclor by an organism.

Q. Sure.

And you set that out in your report with your R-squareds, correct? You would distinguish between an Aroclor, a weathered Aroclor which might be due to dechlorinization, and byproduct sources, right?

A. I'm not sure I understand the question.

Q. Okay. That's fine.

The -- you draw a -- you distinguish between Aroclors, weathered Aroclors, and byproduct sources, correct?

A. Yes.

Q. And I just want to make sure that we're tracking.

Aroclors and weathered Aroclors are different in the sense -- strike that.

You used R-squared values in

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cutoffs to distinguish between those three categories, correct?

A. That was only one line of evidence, and I would not call them cutoffs because they were rough categories. They weren't hard and fast numbers.

Q. Okay. And your analysis involved comparing the PMF factors, the congener profile within the factor against an array of known source profiles; is that fair?

ATTORNEY WOERNER: Object to form.

THE WITNESS: Some of them I would call known source profiles. Some of them I would just -- I don't think they're known in the sense that, for example, when you're comparing with the inadvertent congener patterns, they could vary really widely. So it's hard to know -- it's hard to call them known source patterns.

BY ATTORNEY SORENSON:

Q. Well, but you took what we do know about pigments and silicone, right, to inadvertent PCB sources --

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2 (Stenographer clarification.)

3 ATTORNEY SORENSON: Certainly.

4 BY ATTORNEY SORENSON:

5 Q. You compared the PMF fingerprints
6 to Aroclor profiles, correct?

7 A. Yes.

8 Q. You also compared them to byproduct
9 profiles for silicone and pigments, right?

10 A. Yes.

11 Q. And silicone and pigments are --
12 they have byproduct PCB congeners such as
13 PCB 11 in them, right?

14 A. Often, yes.

15 Q. Okay. Let's look at -- still on
16 your report. We'll turn to page 13 here.
17 It's a very long paragraph. I'm trying to --
18 okay. There we go.

19 Do you see what I highlighted here
20 on page 13 of your report?

21 A. Yes.

22 Q. And that's describing what we've
23 been talking about. You compared the
24 PMF-derived fingerprints with those of iPCBs,
25 and that's referring to inadvertent or

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byproduct PCBs, correct?

A. Yes.

Q. And so you compared the PMF fingerprints to the byproduct PCBs taken from literature sources representing silicone and pigments, and then it lists a number of publications here; is that right?

A. Yes.

Q. And so that's what you did to compare the PMF to byproduct PCBs in forming your opinions for this case, right?

A. Yes.

Q. Okay. And then your linear regression would output an R-squared value; is that correct?

A. Yes.

Q. And that R-squared value would range from zero to 1.0 theoretically, correct?

A. Yes.

Q. Okay. Turn to page 12 here of your report. And it says -- you've used an interpretation that when R-squared between the fingerprint produced by the PMF program and the single Aroclor is greater than

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approximately 0.8, the factor was considered to represent an unweathered single Aroclor, correct?

A. Correct.

Q. And unweathered, that's referring to the dechlorination you referred to earlier, correct?

A. That is only one of many weathering processes that can occur.

Q. Okay. And then the next sentence says: When the R-squared value was between approximately 0.4 and 0.8, the factor was interpreted as representing a weathered Aroclor.

Correct?

A. Correct.

Q. And this is the same set of criteria that was used in the GD reports. Those are the Green-Duwamish publications we've been referring to and we'll take a look at in a bit here. Right?

A. Yes.

Q. Okay. You write that: The R-squared value is used in this case as a

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measure of similarity.

Correct?

A. Yes.

Q. Okay. And then for the Seattle report here, you write: One way to interpret this is to say that when the R-squared is 0.80, the fingerprint is 80 percent similar to Monsanto's Aroclor.

Correct?

A. Yes.

Q. And an R-squared that is less than 0.4, that would signify a non-Aroclor source, right?

ATTORNEY WOERNER: Object to form.

THE WITNESS: Not necessarily.

BY ATTORNEY SORENSON:

Q. Okay. What would that signify?

A. Well, first of all, I said approximately 0.4 to 0.8. So, you know, that's approximate.

But, for example, in the otter scat, there was extremely weathered pattern due to the metabolism of PCBs. So you can sometimes have patterns that have low R-squareds, and

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yet they can represent a fingerprint that started out life as an Aroclor, then underwent a great deal of weathering.

Q. Okay. So certainly you would agree in your report that when you had an R-squared of less than 0.4, you would attribute it at times to a non-Aroclor source, correct?

A. At times, yes.

ATTORNEY WOERNER: Object to form.

BY ATTORNEY SORENSON:

Q. Okay. I know you just described the otter scat.

All right. Let's go back to page 4 of your report here.

Okay. I'm highlighting part of your introduction section. Can you see that?

A. Yes.

Q. This says: In this report, I have specifically addressed the issue of inadvertent versus Monsanto's Aroclor PCB sources and focused on only the Lower Duwamish Waterway or LDW.

Correct?

A. Yes.

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Q. And so if I refer to LDW during
your deposition today, will you understand I'm
referring to the Lower Duwamish Waterway?

5

A. Yes.

6

Q. And your opinions in this case are
limited to that LDW waterway, correct?

8

A. I'm not quite sure how to answer
that because I'm not a lawyer and I don't
totally understand all the boundaries of the
lawsuit. But it was my intention that this
report would focus on the LDW.

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Q. Okay. That's perfectly fine. I
think that's an important distinction to make.
Thank you.

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And so is it your understanding
that the LDW consists of the lower 5 miles of
the Duwamish River?

17

18

19

A. Yes.

20

Q. And you understand that's measured
from the southern tip of what's called Harbor
Island?

21

22

23

A. Yes.

24

Q. And the LDW is contained within
river mile zero to river mile 5.0; is that

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2 Q. And then if we zoom in, we can see
3 there what appear to be river mile markers
4 from zero to 5.0 -- or 4.9, and then it looks
5 like this would be 5.0 here. Do you see that?

6 A. Yes.

7 Q. So appears to me to be a map of the
8 Lower Duwamish Waterway study area. Does that
9 seem fair to you?

10 A. Yes.

11 Q. And is that consistent with your
12 understanding of how you use the term "LDW"
13 within your report?

14 A. Yes.

15 Q. Okay. I want to go back to your
16 report, Exhibit 1 on page 5. You write at the
17 top of page 5: As explained in more detail
18 below, I use positive matrix factorization,
19 PMF, to analyze data from the following
20 compartments.

21 And then you list out seven
22 compartments there. Do you see that?

23 A. Yes.

24 Q. And those compartments include:
25 Air deposition, sediment, surface water,

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2 A. Reports.

3 Q. Reports.

4 Those reports, those GD reports,
5 they concern the Green-Duwamish River
6 Watershed, right?

7 A. Yes.

8 Q. And the Green-Duwamish River
9 Watershed, that extends beyond the LDW; is
10 that fair?

11 A. Yes.

12 ATTORNEY SORENSON: Let's go ahead
13 and mark here Exhibit 15.

14 (Exhibit 15, Green-Duwamish River
15 Watershed PCB Congener Study: Phase 1,
16 April 2018, was marked for
17 identification.)

18 BY ATTORNEY SORENSON:

19 Q. Can you see what I'm sharing on my
20 screen that has been marked --

21 A. Yes.

22 Q. -- as Exhibit 15? Okay.

23 And you're familiar with this
24 report, correct?

25 A. Yes.

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Q. I want to skip ahead here. First off, this is titled: Green-Duwamish River Watershed PCB Congener Study Phase 1.

Correct?

A. Yes.

Q. Okay. On page 13, PDF page 13, which appears to be page 3 of this report, this document describes the Green-Duwamish River Watershed in the first paragraph. Do you see that here?

A. Yes.

Q. This says: The Green-Duwamish River Watershed is located in Water Resource Inventory Area (WRIA) 9, which is located within King County, Washington. The watershed comprises a drainage area of approximately 470 square miles of varied terrain and land use, from forested headwater areas at the crest of the Cascade Mountains to industrial and port facilities of the Duwamish Estuary (King County 2002). The Green River flows more than 90 miles from its headwaters near Stampede Pass on the Cascade Range crest to Elliot Bay in the City of Seattle.

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2 And then it references figure 2-1.

3 Did I read that correctly?

4 A. Yes.

5 Q. And is that consistent with your
6 understanding of the Green-Duwamish River
7 Watershed?

8 A. Yes.

9 Q. And looking at the third paragraph
10 here, this states that: The Duwamish River
11 begins at the confluence of the Green and
12 Black Rivers at approximately RM 11.

13 Do you understand RM 11 referring
14 to river mile 11?

15 A. Yes.

16 Q. And it says: The LDW SuperFund
17 Site consists of the lower 5 miles of the
18 Duwamish River.

19 And that is consistent with how you
20 use LDW within your report, correct?

21 A. Yes.

22 Q. Then it continues: The LDW flows
23 into the east/west waterways on either side of
24 Harbor Island and then into Elliott Bay in
25 Seattle.

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2 Correct?

3 A. Yes.

4 Q. Okay. And you don't disagree with
5 any of those statements, do you?

6 A. No.

7 Q. Okay. And go back to your report
8 here. And so in addition to data that was
9 generated and analyzed as part of the GD
10 reports, in forming your opinions for this
11 case, you also considered data obtained from
12 the Lower Duwamish Waterway Group that was
13 published in its online project library; is
14 that correct?

15 A. Yes.

16 Q. And that concerned the surface
17 water environmental compartment discussed in
18 your report, right?

19 A. Can you repeat the question.

20 Q. Yeah.

21 The supplemental data from the
22 Lower Duwamish Waterway Group, that concerned
23 the surface water environmental compartment
24 discussed in your report, correct?

25 A. I believe that's one of the

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2 Correct?

3 A. Yes.

4 Q. So 4 of those 6 samples between
5 river mile 0.7 and 5, that would only be about
6 4 percent of the 146 total samples, correct?

7 A. Yes.

8 Q. So 96 percent of the data that was
9 included in the PMF analysis would be based on
10 samples collected outside of the LDW for your
11 sediment compartment, correct?

12 ATTORNEY WOERNER: Object to form.

13 THE WITNESS: So the samples from
14 Harbor Island were labeled, as I recall,
15 as river mile zero. And I was led to
16 understand that, you know, the Duwamish
17 was between river mile zero and river
18 mile 5.

19 And because of that, that's why I
20 specifically noted that some of these --
21 these 18 were from Harbor Island. They
22 were labeled as Harbor Island in the
23 data set, but they were also labeled as
24 river mile zero.

25 So it's a little bit unclear the

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2 way that the data was labeled.

3 BY ATTORNEY SORENSON:

4 Q. Okay. So if those 6 -- if we
5 exclude those 18, and then about 4 percent of
6 the data would have been from within the LDW,
7 correct?

8 ATTORNEY WOERNER: Object to form.

9 THE WITNESS: Correct.

10 BY ATTORNEY SORENSON:

11 Q. But if we include the 18, so we've
12 got 24 samples, then about 16 percent of the
13 data set would have been derived from within
14 the LDW; is that fair?

15 A. Yes, that's fair.

16 Q. Okay. And you're aware that the
17 LDW study area has been the subject of two
18 phase -- two phases of remedial
19 investigations, correct?

20 A. I do not know all the details of the
21 remedial investigations.

22 Q. Okay. Let's go ahead and mark --
23 oh, we've already marked it.

24 We've got Exhibit 15 back up here,
25 and this was the Phase 1 PCB Congener Study,

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2 you okay to continue going or did you
3 want to take another short break?

4 THE WITNESS: Let's take another
5 break.

6 ATTORNEY SORENSON: Okay. We can
7 go off the record.

8 THE VIDEOGRAPHER: The time is
9 11:16 a.m. We're off the record.

10 (Recess taken from 11:16 a.m. to
11 11:26 a.m.)

12 THE VIDEOGRAPHER: The time is
13 11:26 a.m. We're on the record.

14 BY ATTORNEY SORENSON:

15 Q. All right, Dr. Rodenburg. We're
16 going to switch gears a little bit here. I
17 want to talk about the data preparation phase
18 of your analyses.

19 So as part of the PMF and MLR that
20 you performed for the GD reports that form the
21 basis of your opinions in this case, you
22 processed datasets from various environmental
23 compartments before they were input into your
24 PMF analysis, correct?

25 ATTORNEY WOERNER: Object to form.

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2 THE WITNESS: Yes.

3 BY ATTORNEY SORENSON:

4 Q. Okay. So, for example, you would
5 remove congeners from a data set so there
6 would be at least as many samples as congener
7 peaks, right?

8 A. Yes. Usually.

9 Q. And this step could result in the
10 removal of byproduct congeners, right?

11 ATTORNEY WOERNER: Object to form.

12 THE WITNESS: I tried to avoid that
13 whenever possible.

14 BY ATTORNEY SORENSON:

15 Q. But certainly it happened, right?

16 ATTORNEY WOERNER: Object to form.

17 THE WITNESS: I can't say that it
18 happened because I can't say which --
19 can't always say which congeners were
20 byproduct. However I know I explained
21 that for the water compartment,
22 certainly, that happened. There were
23 congeners that were taken out that could
24 have been inadvertent.

25 ///

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2 BY ATTORNEY SORENSON:

3 Q. Right. And that's a good
4 clarification because up to 130 congeners have
5 been associated with byproduct sources, right?

6 A. According to Keri Hornbuckle, yes.

7 Q. And you don't dispute that number,
8 right?

9 A. No.

10 Q. Okay. So as part of the data
11 processing step before the PMF was
12 performed—that's what we're focusing on
13 here—at times you removed samples from a
14 data set where you believe the congener
15 profile was an outlier relative to other
16 congener profiles within the compartment,
17 correct?

18 A. I don't remember doing that for any
19 of the Green-Duwamish data sets.

20 Q. Okay.

21 A. I remember occasionally removing
22 samples because they had very few detections.
23 I don't remember taking --

24 (Stenographer clarification.)

25 THE WITNESS: Very few detections.

1 LISA RODENBURG PhD

2 A. Yes.

3 Q. And they can be used to visually
4 represent data; is that correct?

5 A. Yes.

6 Q. I'll share my screen again. We'll
7 go to your report, Exhibit 1. If we turn to
8 page 21 here, we can see an example of a bar
9 chart at the top, right?

10 A. Yes.

11 Q. And so in this instance it looks
12 like you have used the bar chart to represent
13 PCB peaks across the X axis and your relative
14 amount of each peak on the Y axis; is that
15 right?

16 A. Yes.

17 Q. And in forming your opinions, you
18 used bar charts to perform the visual
19 inspections we discussed, right?

20 A. Yes.

21 Q. And you performed those visual
22 inspections of PMF factors against the Aroclor
23 profiles and byproduct profiles you
24 considered, right?

25 A. Could you repeat that question.

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is to do exactly that. It's to determine, for example, in this case, how much of the 45 plus 51 was truly in the water sample and how much of it might have come from the silicone rubber tubing.

So we didn't do that in this specific case. But, for example, in Spokane, we spent a lot of time thinking very carefully about how could we use the PMF model to tease out what may have been inadvertent PCBs introduced from blank contamination.

Q. Okay. Let's go a little bit further down here. So I just want to make sure I understand.

PCBs 11, 206, 208, and 209, they were not included in the PMF model for the surface water, correct?

A. Correct.

Q. And those are specifically congeners that you call out in your report as byproduct in nature, right?

A. They can sometimes be byproduct.

PCB 11 I think is pretty much always a byproduct PCB, but 206, 208, and 209 can go

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either way.

Q. You use them in your analyses as indicators of byproduct sources, right?

A. Yes. As one indicator that byproduct sources might be present.

Q. And then if we go further down along the same page, page 19, it says: 6 samples from Harbor Island were not included in the PMF input because less than 20 peaks were detected in them, i.e. their PCB levels were extremely low.

Correct?

A. Yes.

Q. So the six samples that had very low PCBs samples were not included in the PMF input, right?

A. Correct.

ATTORNEY SORENSON: Okay. We're about to switch gears a little bit again here. Do you want to take a lunch now or do you want to keep on going?

THE WITNESS: This is probably a good time to take lunch, if that's okay with everybody --

1 LISA RODENBURG PhD

2 THE WITNESS: I am getting 78.57
3 percent. So not more than 79 percent,
4 no.

5 BY ATTORNEY SORENSON:

6 Q. 10.3 divided by 13 is 79.23.

7 A. Okay. I know what's happening here.
8 This is a rounding problem. Okay.

9 Q. Are you using the actual cells
10 for --

11 A. Yes, so --

12 (Parties speaking simultaneously.)

13 THE STENOGRAPHER: One at a time,
14 please.

15 BY ATTORNEY SORENSON:

16 Q. Your number will be more accurate
17 than mine then. What number are you getting?

18 A. I was getting 78.566 percent.

19 Q. Okay. Great. So I'll ask my
20 question.

21 In your investigation of the
22 groundwater compartment you excluded from your
23 PMF analysis samples comprised of more than
24 78 percent byproduct PCB 11, correct?

25 ATTORNEY WOERNER: Object to form.

1 LISA RODENBURG PhD

2 THE WITNESS: Correct. Sorry.

3 Correct.

4 BY ATTORNEY SORENSON:

5 Q. Thank you.

6 Okay. Let's go back to Exhibit 13,
7 which is the Phase 2 Source Evaluation. Do
8 you see that?

9 A. Yes. That's Exhibit 13. Okay.

10 Q. And you produced this as one of
11 your reliance materials in this case, correct?

12 A. Yes.

13 Q. And this is one of the two GD
14 reports referenced in your Seattle report,
15 which has been marked as Exhibit 1; is that
16 correct?

17 A. Correct.

18 Q. Okay. I want to turn to page 4,
19 which is actually on PDF page 14. And the
20 first bullet point under "Available Samples by
21 Medium," you have an "Air Deposition"
22 category. Do you see that?

23 A. Yes.

24 Q. And the last sentence of this
25 bullet states: This data set included about

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except keeping in mind the additional data sets that you had on the surface water and that you received from that public library, correct?

A. Correct.

Q. You did not rerun any PMF analysis except for the water column, and you reran that one because of that new sampling, correct?

A. Correct.

Q. And for -- on Exhibit 13 here, staying on this exhibit, for the air deposition environmental compartment you state that 88 percent of the total PCB mass was included in the PMF, correct?

A. Correct.

Q. So 12 percent of the PCB mass within the air deposition category or compartment was removed before running your PMF analysis, right?

A. Correct.

Q. And for surface water, you state that the PMF analysis included approximately 60 percent of the total measured PCB mass in

1 LISA RODENBURG PhD

2 all available surface water samples. Did I
3 read that correctly?

4 A. Correct.

5 Q. And so you excluded 40 percent of
6 the total PCB mass within the surface water
7 compartment before running your PMF analysis,
8 true?

9 A. Correct.

10 Q. Turning to the tissue compartment,
11 you write that the data set included
12 approximately 96 percent of the total measured
13 PCB mass in all available tissue samples. Do
14 you see that?

15 A. Yes.

16 Q. So you excluded 4 percent of the
17 PCB mass within the tissue compartment before
18 running your PMF analysis, correct?

19 A. Yes.

20 Q. And for sediment, which runs into
21 the next page here, PDF page 15, it states
22 that the PMF included approximately 94 percent
23 of the PCB mass detected in all available
24 sediment samples. Do you see that?

25 A. Yes.

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2 Q. So 6 percent of the total PCB mass
3 was excluded from your PMF analysis of the
4 sediment environmental compartment, correct?

5 A. Correct.

6 Q. For storm drains you write that the
7 congeners included approximately 92 percent of
8 the total PCB mass detected in all available
9 storm drain samples. Do you see that?

10 A. Yes.

11 Q. So you excluded 8 percent of the
12 total PCB mass within the storm drain
13 compartment before running your PMF analysis;
14 is that true?

15 A. Yes.

16 Q. Okay. Let's go back to your
17 report, Exhibit 1, and we're on page 22 here,
18 and if we go -- we're on groundwater. Under
19 "Factors," you write: The PMF input --

20 Sorry. I need to --

21 A. Down, scroll down.

22 Q. Well, I wanted to see groundwater
23 here.

24 A. Yeah, I think that's further down.

25 Q. Oh, perfect. Thank you.

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2 Here we are.

3 (Reading:) The PMF input was
4 limited to 58 peaks which comprised 76 percent
5 of the total PCB mass detected in these
6 samples.

7 Do you see that?

8 A. Yes.

9 Q. So you excluded 24 percent of the
10 total PCB mass within the groundwater
11 compartment before running your PMF analysis,
12 correct?

13 A. Yes.

14 Q. And otter scat is up -- starting on
15 page 21 here, spilling on to page 22 of
16 Exhibit 1, and we can see you write under
17 "Factors" that 73 peaks in 74 samples were
18 included in the PMF analysis for otter scat,
19 correct?

20 A. Yes.

21 ATTORNEY SORENSON: Let's go ahead
22 and mark Exhibit 26 here.

23 (Exhibit 26, Raw data Excel
24 spreadsheet, was marked for
25 identification.)

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more than one congener that come out at the same time on the gas chromatograph. And, therefore, they cannot be quantified separately by the mass spec method. They would also have to have the same mass.

Q. Okay. So we can say, then, that there were at least 162 congeners within this data set because of coelutions?

A. You -- there were 162 peaks in the data set.

Q. Okay. That's fine.

Now, the original data set had 162 peaks per -- that's what we're looking at here, right?

A. Correct.

Q. And if we go back to Exhibit 1, for otter scat you ran PMF on 73 peaks, correct?

A. Correct.

Q. Okay. So if we divide 73 by 162, that means only 45 percent of the unique peaks in this data set were used in your MLR of the otter scat, correct?

A. This was PMF.

Q. Oh, I'm sorry. I misspoke. The

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PMF of the otter scat only included about 45 percent of the unique peaks that were reported in the original data set, correct?

A. Correct.

Q. And the removal of PCB mass from the input data was part of the data processing you performed before PMF, correct?

A. Correct.

Q. And so your analysis did not consider the full mass of all possible byproduct PCB congeners in each environmental compartment, true?

ATTORNEY WOERNER: Object to form.

THE WITNESS: Could you repeat the question.

BY ATTORNEY SORENSON:

Q. Your analysis did not consider the full mass of all possible byproduct PCB congeners in each environmental compartment, correct?

ATTORNEY WOERNER: Object to form.

THE WITNESS: It did not include the full mass of each congener. Whether those congeners are inadvertent or

1 LISA RODENBURG PhD

2 your question.

3 BY ATTORNEY SORENSON:

4 Q. You excluded PCB mass from the
5 environmental compartment data before you ran
6 PMF, correct?

7 A. Correct.

8 Q. Therefore, your methodology cannot
9 quantify the fraction of the total PCBs in
10 each sample, correct?

11 ATTORNEY WOERNER: Object to form.

12 THE WITNESS: Again, I believe that
13 my method does account for all of the
14 PCBs, the total PCBs in the sample, by
15 clearly stating how much of that mass
16 was included in the PMF model and how
17 much of it was not.

18 BY ATTORNEY SORENSON:

19 Q. By stating it was not included in
20 the model, you agree that certain percentages
21 were actually excluded from the PMF, correct?

22 A. Yes.

23 ATTORNEY SORENSON: Okay. All
24 right. And I want to switch gears a
25 little bit here. Are you okay to keep

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Q. Okay. So your testimony is that you did not compare fingerprints to mixtures of byproduct sources in the GD reports but you did in the Seattle report in forming your opinions for this case, correct?

A. For the Seattle expert report I compared the fingerprints to individual fingerprints of non-Aroclor sources.

Q. Okay. So you did not compare to mixtures of non-Aroclor sources, correct?

A. Correct.

Q. But you did compare to mixtures of Aroclor sources, right?

A. Yes.

Q. Okay. And when you compared to a mixture, you were looking at whether the fingerprint represented a linear combination of Aroclors 1242, 1248, 1254, and 1260; is that right?

A. That's correct for the original GD reports. I believe that for the expert report I also considered Aroclor 1268.

Q. And did you have to rerun your PMF to do that analysis?

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2 A. No.

3 Q. Okay. And when you compared your
4 PMF factors to byproduct PCB profiles, you
5 only compared them to profiles on silicone and
6 pigments, correct?

7 ATTORNEY WOERNER: Object to form.

8 THE WITNESS: I believe that's
9 correct. Yes.

10 BY ATTORNEY SORENSON:

11 Q. And you used an R-squared -- I
12 don't want to use the word "cutoff." I know
13 you don't like that word. But you used an
14 R-squared of 0.4 as part of that analysis,
15 correct?

16 A. Yes.

17 Q. What did -- strike that. Let's go
18 to Exhibit 1. This is your report, and I'm on
19 page 13 here.

20 You write here: I used the same
21 criteria as for the Monsanto's Aroclors. Any
22 correlation with an R-squared value greater
23 than 0.4 was examined to determine whether the
24 correlation was based on multiple congeners
25 and not just one or two.

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2 of common congeners, right? We've discussed
3 that today?

4 A. They might, yes.

5 Q. Upwards of 130 PCB congeners are
6 associated with byproduct sources, right?

7 A. Again, that's what Keri Hornbuckle
8 says, and I have no reason to disagree with
9 her.

10 Q. Okay. Well, let's go ahead to
11 Exhibit 29 here. We're skipping over a
12 couple. I'm trying to be as efficient as I
13 can with everyone's time.

14 (Exhibit 29, Source Apportionment
15 of Polychlorinated Biphenyls in
16 Atmospheric Deposition in the Seattle,
17 WA, USA Area Measured with Method 1668,
18 was marked for identification.)

19 BY ATTORNEY SORENSON:

20 Q. Dr. Rodenburg, do you recognize
21 this document?

22 A. Yes.

23 Q. This was one of your reliance
24 materials for this case, right?

25 A. Yes.

1 LISA RODENBURG PhD

2 Q. Okay. Let's go to page 26 here.

3 Certainly they're referring to
4 these as inadvertent PCB congener results,
5 correct?

6 A. Individual PCB congener results.

7 Q. Oh, I'm sorry. Individual PCB
8 congener.

9 And it says: Appendix D presents
10 an evaluation of PCB congener data above 0.5
11 parts per billion for all 216 samples.

12 Do you see that?

13 A. Yes.

14 Q. And, again, it says lower here:
15 Table 7 (Appendix D) provides a summary of the
16 individual congeners detected in these 835
17 results.

18 Do you see that?

19 A. Yes.

20 Q. Okay. Let's go ahead and look at
21 table 7. It's on page 57 -- or, I'm sorry,
22 page 52. Do you see that here?

23 A. Yes.

24 Q. And so going back to our -- between
25 Exhibit 29, which has the Air1 factor data --

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2 well, it has all the air factor data, and then
3 table 7 of Exhibit 30, we can see PCB 77 is
4 published as being found in consumer products.
5 Do you see that?

6 A. Yes.

7 Q. Okay. PCB -- PCB 167 is also
8 published as being found in consumer products,
9 correct?

10 A. Yes.

11 Q. PCB 156 and 157 is also published
12 as being found in consumer products, correct?

13 A. Yes.

14 Q. PCB 118 is included, correct?

15 A. Yes.

16 Q. And PCB 128 is included, correct?

17 A. Well, it's coeluted with 166 in that
18 data set, but yes --

19 Q. Okay.

20 A. -- so that means that either that
21 peak, which could be 128, could be 166, or
22 could be a mixture of the two, was found --

23 Q. Sure.

24 A. -- in these consumer products.

25 Q. Okay. And PCB 105 is published as

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2 being presented in consumer products on
3 table 7 of Exhibit 30, correct?

4 A. Yes.

5 Q. And so is PCB 114, correct?

6 A. Yes.

7 Q. Okay. So back to Exhibit 29.

8 We can see for the air compartment
9 that air factors -- a number of these
10 congeners have been reported in literature as
11 being found in consumer products, correct?

12 A. Correct.

13 Q. And if we go to page 5 of
14 Exhibit 29, we can see a bar chart, a number
15 of bar charts, for the various air factors
16 produced by the PMF, correct?

17 A. Correct.

18 Q. And you can see an orange here --
19 the orange bars, those represent Aroclor 1016,
20 correct, for Air1?

21 A. Correct.

22 Q. And the blue, the blue bars,
23 represent the PMF factor generated for Air1,
24 correct?

25 A. Correct.

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Q. And there are a number of -- well, let me ask this.

As we go from left to right, it's my understanding—we can see the bottom here—that the molecular weight of the PCBs is increasing, correct?

A. Correct.

Q. And this goes like -- it looks like from PCB 4 all the way up to PCB 209; is that correct?

A. Yes.

Q. If we look at factor 1, you note an R-squared of 0.79; is that right?

A. Yes.

Q. And that represents 25 percent of the PCB mass within Air1, correct?

A. Correct.

Q. Okay. And if we look here, the Air1 bar chart has numerous PCB congeners—it looks like from about 77 all the way up to near 209—which are not explained by Aroclor 1016, correct?

A. Correct.

Q. And if we just look at the Y axis,

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this gives us the percentages of these various congeners, the percentage they comprise of the factor, correct?

A. Correct.

Q. And if we -- we can estimate the blue from 77 up to 209 -- to me it looks like about 30 percent of the total PCB mass within Airl. Would you agree?

ATTORNEY WOERNER: Object to form.

THE WITNESS: That seems a little high to me, but I'm not sure it's worth quibbling over.

BY ATTORNEY SORENSON:

Q. Okay. So, I mean, this one right here looks about 5, another 5, these 3 -- so 10. These 3 together are surely 10. And so I'm sure the rest of this is at least 10. So to me it looks like about 30. But sounds like you'll take my word for it.

And these more chlorinated congeners, they could not be formed in the environment from less chlorinated congeners present near Aroclor 1016, correct?

ATTORNEY WOERNER: Object to form.

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THE WITNESS: As far as I know, no.

BY ATTORNEY SORENSON:

Q. Okay. And despite that fact, you nevertheless attribute factor Air1 to Aroclor 1016 with a R-squared value of 0.79, right?

A. I think if you go read the text of this paper, I talk about the fact that the presence of these other higher molecular weight congeners indicates that there was probably some mixing possibly of other Aroclors.

(Stenographer clarification.)

A. Higher molecular weight congeners in this fingerprint probably indicates mixing of different sources during air transport. If you scroll down to that section, you can see what I wrote.

ATTORNEY SORENSON: I'll move to strike as nonresponsive.

BY ATTORNEY SORENSON:

Q. Dr. Rodenburg, I asked whether you attribute air factor 1 to Aroclor 1016 with an R-squared of 0.79.

1 LISA RODENBURG PhD

2 ATTORNEY WOERNER: Object to form.

3 Object to the manner in which you're
4 conducting the deposition.

5 THE WITNESS: I say that it's
6 similar to Aroclor 1016. I never said
7 that it was absolutely nothing but
8 Aroclor 1016.

9 BY ATTORNEY SORENSON:

10 Q. Well, when -- on Exhibit 1 when you
11 published the ultimate conclusion for air,
12 87 percent arise from Monsanto Aroclors,
13 that's attributing 100 percent of Air1 to
14 Aroclors, correct?

15 A. Correct.

16 Q. And going back to Exhibit 29, it's
17 possible that these more chlorinated congeners
18 that are not explained by 1016 are not from an
19 Aroclor but are instead from a byproduct
20 source, correct?

21 A. I would have to read what I wrote
22 later in the paper. I don't remember.

23 Q. Let's go ahead and go back to
24 Exhibit 1, page 18, where you discuss the
25 sediment environmental compartment here.

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2 Aroclor 1016, 21 percent Aroclor 1248, and
3 42.5 percent Aroclor 1260, with an R-squared
4 value of 0.75.

5 Did I read that correctly?

6 A. Yes.

7 Q. And this Sediment1 factor was
8 attributed -- if we were to go to page 4 where
9 you discuss sediment, that was attributed
10 100 percent to Aroclor source for this opinion
11 on page 4, correct?

12 A. Correct --

13 ATTORNEY WOERNER: Object to form.

14 THE WITNESS: Correct.

15 BY ATTORNEY SORENSON:

16 Q. Okay. Let's go ahead and go back
17 to Exhibit 13, which is the PCB Congener Study
18 Phase 2 Source Evaluation. On PDF page 29 at
19 the top, this is the same Sediment1 -- this is
20 the bar chart for the Sediment1 factor,
21 correct?

22 A. Yes.

23 Q. And, again, we see in yellow -- or
24 in orange the fingerprint for Aroclor 1016 and
25 then in blue is the PMF output for Sediment1,

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2 correct?

3 A. Correct.

4 Q. And there are a number of higher
5 chlorinated congeners between PCB 83 and it
6 looks like PCB 182 that are not explained by
7 Aroclor 1016, correct?

8 A. Correct.

9 Q. Visually it looks like about half
10 the PBC mass in Sediment1 is not explained by
11 Aroclor 1016, correct?

12 ATTORNEY WOERNER: Object to form.

13 THE WITNESS: Yes. Correct.

14 BY ATTORNEY SORENSON:

15 Q. If we go back to your Exhibit 1,
16 your report, on page 12 you discuss -- I'm
17 sorry. Let's look here.

18 You write: For example, the
19 R-squared value for the comparison of one of
20 the sediment fingerprints below compared to
21 Monsanto's Aroclor 1242 is 0.42, but the
22 p value is 0.0000000006, highly significant.

23 Did I read that correctly?

24 A. Yes.

25 Q. All right. And this is referring

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matched the pigment profile published in cell -- we can see the R-squared of 0.57 in cell CC65. Do you see that?

A. Yeah. That higher squared was due to literally one detected congener in that pigment sample.

Q. This R-squared is greater than the 0.4 cutoff that you employed for byproduct PCBs, correct?

A. Yes. That's why I then examined the fingerprint carefully, and I noticed that there's only one detected congener in that pigment fingerprint.

Q. Okay. You can pull this one down.

Dr. Rodenburg, when you compared the PMF factors to byproduct PCBs, you did not consider PCB profiles for anything such as caulks or joint compounds, motor vehicle fluids, asphalt, de-icer, or other products like those, did you?

A. Could you repeat the question.

Q. Sure.

When you compared your PMF factors to byproduct PCB profiles, you didn't consider

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profiles other than silicone and paint, right?

A. I didn't consider anything that wasn't in the spreadsheet, correct.

Q. Okay. And the spreadsheet only contains silicone and pigments, right?

A. That's correct.

Q. Okay. So you didn't compare the factors to PCB profiles for things such as caulking, joint compounds, motor vehicle fluid, asphalt de-icer -- or de-icer, did you?

A. I didn't consider those to be sources of byproduct PCBs. I considered those to be sort of secondary. For example, the caulk might have silicone in it, so that would have been covered underneath the category of silicone.

Q. Okay. What about things that did not contain silicone in them? Asphalt, did you compare byproduct -- your factors to congeners present -- byproduct PCB congeners present in asphalt?

A. No.

Q. Okay. And certainly you agree that asphalt is a product that's been used in the

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2 vicinity of the LDW, right?

3 A. Obviously asphalt can come from many
4 places, and in the report that you are citing,
5 I believe that was the report written by
6 Stone. That was one example of one asphalt
7 from one place, so it's very difficult to
8 generalize and say that, you know, PCBs and
9 asphalt always have that congener fingerprint.
10 But I certainly agree that asphalt was used
11 throughout the Lower Duwamish Waterway.

12 Q. And it wasn't considered in your
13 analysis comparing fingerprints to byproduct
14 sources, correct?

15 A. Correct.

16 Q. Let's go ahead and go back to
17 Exhibit 19. This is the -- this concerns the
18 air compartment, correct?

19 A. Yes.

20 Q. Okay. And so we've got a number we
21 went over on the top row here. These are the
22 first two rows. The first row has a
23 publication name, correct?

24 A. Yes.

25 Q. And the second row, it either says

1 LISA RODENBURG PhD

2 Q. Does that look like the correct
3 function to you?

4 A. Yes.

5 Q. And we get an average of 8.41 peaks
6 within the byproduct profiles published here,
7 correct?

8 A. Correct.

9 Q. And these are the same byproduct
10 profiles that you compared all of your factors
11 to, correct?

12 A. Well, here I'm listing all 209
13 congeners. And then to compare them to the
14 factors that came out of PMF, I had to pare
15 that down so it was the same congener list.

16 Q. Sure.

17 A. So on the tab that says "compare to
18 iPCBs," it's a shorter list than what you're
19 seeing here.

20 Q. So it definitely would not have
21 been more than this average number when you
22 got to the PM- -- comparing it to the PMF,
23 correct?

24 A. Shouldn't be.

25 Q. If anything, data would have been

1 LISA RODENBURG PhD

2 A. No, I'm not sure that's correct at
3 all.

4 Q. Okay. We can take a look.

5 An easy example for tissues, you
6 said greater than 99 percent is attributed to
7 the Aroclors, correct?

8 A. Um-hum.

9 Q. And then on tissues on page 20 of
10 your report: The sum of PCBs 11, 206, 208,
11 and 209 average 0.2 percent of total PCBs in
12 the tissue samples.

13 Is that correct?

14 A. Yes.

15 Q. So the greater than 99 percent was
16 just a 100 percent minus this 0.2 percent,
17 right?

18 ATTORNEY WOERNER: Object to form.

19 THE WITNESS: That's one of the
20 ways I considered the question, yes. I
21 also looked at the fingerprints, but
22 yes.

23 BY ATTORNEY SORENSON:

24 Q. Okay. So one of the ways in which
25 you did this analysis to accommodate for the

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right now about the tissue compartment. You equated the mass percentage of four byproduct PCB congeners—11, 206, 208, and 209—with the total percent of byproduct PCB congeners to arrive at your conclusion that greater than 99 percent of the compartment is comprised of Aroclor PCBs, correct?

A. No. That's only one line of evidence that I used.

The other line of evidence was the PMF fingerprints. And in this case, as far as I could determine, none of the PMF fingerprints were related to non-Aroclor PCBs.

Q. Okay. So I just want to focus on that one line of evidence.

You said you used multiple. Let's focus on the one. One line of evidence that you used was to take 100 percent and then subtract these four inadvertent congeners from that 100 percent to arrive at your conclusion that greater than 99 percent of the environmental compartment was comprised of Monsanto's Aroclor PCBs, correct?

A. I think that you -- you would say

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that in this case the 0.2 percent is a lower bound on what the total amount of inadvertent congeners could be.

Q. Okay. So it could be higher than 0.2 percent, correct?

A. Right. Which is why I described it as greater than 99 percent.

Q. Oh, that was referring to the Aroclor sources, right?

A. Right. I described the Aroclor sources as greater than 99 percent assuming, based on this calculation, that the non-Aroclor could be 0.2 percent, could be a little bit more, but because none of the fingerprints that I got from the PMF analysis led me to think that there were any other non-Aroclor sources in the biota -- this is the biota, right?

Q. The tissue --

A. Yeah, tissue. Tissue, biota; I use those terms interchangeably.

Because I didn't see any fingerprints in the biota that I couldn't explain as Aroclors, I had no reason to think

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2 A. -- of what could be byproduct
3 sources.

4 Q. And equating the -- this lower
5 bound to byproduct PCB sources, that could
6 result in an underestimation of byproduct
7 sources in each environmental compartment you
8 considered, right?

9 ATTORNEY WOERNER: Object to
10 form --

11 THE WITNESS: It's a lower bound,
12 so by definition it shouldn't be an
13 underestimate.

14 BY ATTORNEY SORENSON:

15 Q. Well, you only look at four
16 congeners here to represent the byproduct
17 sources, right?

18 A. Right.

19 Q. And there have been upwards of 130
20 congeners associated with byproduct PCBs,
21 right?

22 A. Correct.

23 Q. And so only considering 4 out of
24 130 could result in an underestimation of
25 byproduct sources within each environmental

1 LISA RODENBURG PhD

2 compartment, right?

3 A. Correct. That's why I also looked
4 at the PMF results.

5 ATTORNEY SORENSON: Okay. We're
6 getting close to wrapping up. Do you want to
7 take another quick break and then we can go --

8 ATTORNEY WOERNER: Why don't we do
9 that.

10 ATTORNEY SORENSON: Let's go off
11 the record.

12 THE VIDEOGRAPHER: The time is
13 3:18 p.m. We're off the record.

14 (Recess taken from 3:18 p.m. to
15 3:34 p.m.)

16 THE VIDEOGRAPHER: The time is
17 3:34 p.m. We're on the record.

18 BY ATTORNEY SORENSON:

19 Q. All righty. Dr. Rodenburg, thanks
20 for bearing with me here. I know we've gone
21 over quite a bit of stuff, and hopefully we're
22 getting near the end and get this wrapped up.

23 Sorry here. I misplaced my note.

24 Here we go. Okay.

25 Go ahead and share my screen again.

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you determine the byproduct mass within that environmental compartment that is contributed by that factor?

A. No.

Q. Why is that?

A. You can't determine it. You just said: Could you determine it? No.

I already said multiple times that the way I applied this methodology was trying to determine an upper bound. I never said I was actually determining the amount of inadvertent PCBs in the fingerprint.

I agree that you as a lawyer can put a bunch of numbers on a spreadsheet and you can do some math and you can come up with some numbers. I disagree that those numbers represent the amount of byproduct mass in any compartment in any of the tables you're showing me right now.

Q. Does any of the math look incorrect to you in any of these tables? Is it just the mathematics behind it, whether or not it's applicable here?

A. I have stipulated that you as a

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lawyer can do math and that these numbers are
probably mathematically correct.

ATTORNEY SORENSON: Let's go ahead
and take a brief break, and then I can
see whatever follow-up I need to do, and
then we can go from there.

Let's go off the record.

ATTORNEY SORENSON: It's 4:14 p.m.
We're off the record.

(Recess taken from 4:14 p.m. to
4:30 p.m.)

THE VIDEOGRAPHER: Time is
4:30 p.m. We're on the record.

ATTORNEY SORENSON: Dr. Rodenburg,
I really appreciate your time today.

I don't have any further questions
at this time, but defendants reserve the
right to keep this deposition open
pending further document production in
response to our notice of deposition and
attendant request for production as well
as your refusal to answer questions
regarding your Spokane methodology.

And with that said, I have nothing

LISA RODENBURG PhD

and the data.

And consistently across all the compartments, that was true. The R-squared values were very high, usually in excess of 0.9.

Q. And you were asked a lot of questions about the R-squared scale that you use, particularly there was a bunch of questions about the 0.40.

With respect to your analysis, once an R-squared is generated, is there further analysis that you perform before you determine whether or not there's a fingerprint match?

A. Yes. I always -- I use the R-squared as a relatively easy-to-calculate way of determining similarity, but I always then go back and look at the fingerprint and compare it visually to other sources. In this case, I compared it not only to the Aroclors but also to these non-Aroclor fingerprints that I got from the literature.

(Stenographer clarification.)

A. I don't remember. I think I said from the PMF. Oh, that I got from the

1 LISA RODENBURG PhD

2 4:45 p.m.)

3 THE VIDEOGRAPHER: The time is

4 4:45 p.m. We're on the record.

5 EXAMINATION

6 BY ATTORNEY SORENSON:

7 Q. Okay. Dr. Rodenburg, just a couple
8 more questions.

9 Your counsel -- counsel for the
10 City asked you a couple questions about the
11 data set that was taken within the LDW and
12 outside of the LDW. Do you recall that?

13 A. Yes.

14 Q. And you testified that you did not
15 rerun your analyses because the data set, the
16 larger broader data set, is within a tidal
17 system; is that right?

18 A. Right. Much of it is tidal.

19 Q. And can you tell what impact the
20 tidal system would have on air deposition
21 data?

22 A. It doesn't have any impact on the
23 air deposition data.

24 Q. Okay. What about storm drain
25 solids and stormwater?

LISA RODENBURG PhD

A. I have seen examples of cases where some storm drains do back up with water during high tide. I don't know if that occurs in Seattle.

Q. Okay. And you testified that you performed an analysis to determine whether results of data within the LDW are consistent with the broader data set that includes information outside of the LDW. Do you recall that?

A. Yes.

Q. And where in your report do you discuss the methodology you employed to perform that analysis?

A. I did not discuss that in the report.

Q. And where in your report do you discuss the results of that analysis?

A. I do not discuss that in the report.

ATTORNEY SORENSON: No further questions. Thank you.

ATTORNEY WOERNER: Thank you.

THE WITNESS: Thank you. Thank everybody for accommodating me by

LISA RODENBURG PhD

C E R T I F I C A T E

STATE OF WASHINGTON)

) SS.:

COUNTY OF ISLAND)

I, GWEN S. BRASS, a Certified
Shorthand Reporter within and for the state of
Washington, do hereby certify:

That LISA RODENBURG PhD, the witness
whose deposition is hereinbefore set forth,
was duly sworn by me and that such deposition
is a true record of the testimony given by
such witness.

I further certify that I am not
related to any of the parties to this action
by blood or marriage; and that I am in no way
interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto
set my hand this 12th day of April, 2022.

Gwen Brass

Gwen Brass, CCR 1908